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THREE INTERESTING ADDITIONS TO THE CRINOID
FAUNA OF SAGAMI BAY AND SURUGA GULF, JAPAN.

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During the last century the wonderfully rich marine fauna of southern Japan has received more attention than the fauna of any other portion of the vast Indo-Pacific area. The British steamer "Challenger" took a few dredge hauls there, the Swedish steamer "Vega" brought back some interesting specimens, while the United States steamer "Albatross" on two cruises sixteen years apart, and the Japanese yacht "Golden Hind" in investigations covering a long series of years, have done considerable intensive work. Individual effort has figured largely in increasing our knowledge of the Japanese fauna; among foreign investigators von Siebold, Stimpson, Hilgendorf, E. S. Morse, Alan Owston, Döderlein, Doflein and Haberer in particular have made extensive collections, while their work has been supplemented, especially in later years, by that of a large number of able and energetic Japanese naturalists.

And yet the possibilities of this fauna are by no means exhausted, for interesting new forms are constantly coming to light in all classes.

Of the three crinoids herein described two were collected by Professor Doflein, the third by Mr. Alan Owston; the last represents a genus, the other two specific groups in their respective genera, hitherto unknown from Japan.

Comantheria intermedia new species.

This species in general structure resembles *C. briareus*, *C. rotula* and *C. weberi*.

The arms vary in number from thirty-one to forty-eight, the average number being forty; the division series and brachials resemble exactly

those of *C. weberi*. The arms are from 130 mm. to 180 mm. long, the average length being about 145 mm.

The centrodorsal is thick discoidal, 7 mm. to 9 mm. in basal diameter, and from 4 mm. to 6 mm. across the concave dorsal pole; the cirrus sockets are arranged in two and a partial third closely crowded alternating rows.

The cirri reach a maximum of xxxii in number, but usually there are only a few well developed, the majority being more or less rudimentary; in general they resemble the cirri of *C. weberi* but they are much more slender, much less curved distally, and are composed of a larger number of segments; the proportionate number of more or less rudimentary cirri is greater in this form than in *C. weberi*. The cirri are from 18 mm. to 30 mm. in length (usually between 23 mm. and 25 mm.), and are composed of from 20 to 28 (usually 24-26) segments of which the longest, in the proximal portion, are about one third again as long as broad, and the outer, from about the eleventh onward, about twice as broad as long, the transition from the one type to the other being rather abrupt; the short outer segments have the dorsal surface convex in profile view, the maximum height of this convexity being at first at the distal end of the segments, but gradually moving proximally so that the distal segments are provided with low blunt median tubercles; the opposing spine is transversely elongate.

Type.—In the Zoological Museum, Munich, Bavaria, from Sagami Bay, Japan, down to about 150 meters (83 fathoms).

Paratypes.—Cat. Nos. 35,776 and 35,777, U. S. N. M., from the same locality.

Comantheria intermedia is most closely related to *C. weberi* A. H. Clark from the Lesser Sunda Islands.

Dichrometra dofleini new species.

The cirri are about xxx, 27-28, 30 mm. long; the segments in the proximal half are about as long as broad, and in the distal half slightly broader than long with small dorsal tubercles or short spines, these beginning on the twelfth segment.

In the type specimen there are forty-seven arms 130 mm. long, developed in 2, 2, 2, 2 order, or in 2, 1, 1, 2-2, 1, 1, 2 order on each ray.

P_2 is 16 mm. long with twenty-eight segments; P_3 is 18 mm. long with twenty-seven segments, most of which are twice as long as broad, the distal becoming much elongated.

Type.—In the Zoological Museum, Munich, Bavaria, collected by Professor Dr. Franz Doflein in Enoura Bay, Suruga Gulf, Japan, in about 150 meters (83 fathoms).

Dichrometra dofleini is most nearly related to *D. ciliata* A. H. Clark from the Ganjam coast of India in from 30 to 38 fathoms.

Prometra owstoni new species.

Centrodorsal discoidal, rather thick, the broad flat polar area 2 mm. in diameter and covered with numerous small uniform rounded tubercles; the cirri are arranged in two irregular alternating marginal rows.

Cirri xxvii, 16-21 (usually 18 or 19), 10 mm. long; the first segment is short, much broader than long, and the following gradually increase in length to the fourth or seventh (usually fifth or sixth) which, with the remainder, is about as long as broad; on the second or third segment the median portion of the distal dorsal edge becomes produced, this production on the two or three following involving the entire distal edge so that, viewed dorsally, it appears as a crescentic ridge with a serrate apex, the horns of the crescent touching the distal dorsal angles of the segments; gradually this crescent becomes straightened out so that beyond about the middle of the cirrus each segment bears a straight median serrate transverse ridge; viewed from the ends of the segments these transverse ridges usually show a more or less convex profile, though on some of the cirri they may be nearly straight; distally these ridges become gradually narrower, on the antepenultimate segments being commonly represented by slight median tubercles; the opposing spine is terminal or subterminal; erect, in height equal to about half the distal diameter of the penultimate segment, though sometimes longer; its base occupies nearly or quite all of the dorsal surface of the penultimate segment; the terminal claw is about as long as the penultimate segment, stout in the proximal third, but slender in the distal two-thirds, which portion usually is rather abruptly bent downward.

The ten arms are probably between 55 mm. and 60 mm. long.

The radials are even with the edge of the centrodorsal; the IBr_1 are short, about four times as broad as the median length, which is about one third less than the lateral length; the lateral edges are straight, and in apposition; the IBr_2 (axillary) is rhombic, broader than long; the first brachial is short, trapezoidal, twice as long exteriorly as interiorly, the inner edges united for about the proximal two-thirds; the second brachial is larger, irregularly quadrate; the third and fourth brachials form a syzygial pair which is slightly longer internally than externally, nearly or quite twice as broad as the lesser (exterior) length; the next two brachials are slightly wedge-shaped, three or four times as long as the median diameter, and the following become more and more pronouncedly wedge-shaped and after the fourteenth triangular, about as long as broad, and distally wedge-shaped again, and slightly longer than broad. Syzygies occur between the third and fourth brachials, again between the thirteenth and fourteenth (sometimes between the ninth and tenth or tenth and eleventh), and distally at intervals of from four to seven (usually five) oblique muscular articulations.

P_1 is 8 mm. long with fourteen segments of which the first is half again as broad as long, the second is slightly trapezoidal, half again as long as the distal diameter, the third is twice as long as broad, and the remainder are from three to four times as long as broad; the seventh and following have very prominently everted and spinous overlapping distal edges. P_2 is 8 mm. long with sixteen segments, similar to P_1 but with the segments proportionately slightly shorter; the sixth and following have very prominently everted and spinous distal edges. P_3 is 8 mm. long with fourteen segments, similar to P_2 . P_4 is 5 mm. long with fourteen segments,

similar to P_3 but with the segments, especially the distal, proportionately shorter. P_5 is 6 mm. long with sixteen segments of which the outer become greatly elongated, and the third and following have prominently everted and spinous distal edges. The following pinnules resemble P_5 , but gradually increase in length so that the distal pinnules are 8 mm. long, composed of seventeen segments most of which are about twice as long as broad, with produced and spinous distal edges; the two terminal segments of the distal pinnules are rather abruptly smaller and more slender than the preceding.

The color is purple, the cirri yellow, each segment with a median ventral purple saddle; regenerated arms are yellow.

Type.—Cat. No. 35,631 U. S. N. M., collected by Mr. Alan Owston in Sagami Bay, Japan, in 55 fathoms.

Prometra owstoni is most nearly related to *P. longipinna* A. H. Clark from the Philippine Islands in 58 fathoms.